IN THE CLAIMS

Please make the indicated Amendments and Allow the resulting Claims:

1. (presently amended): A method of segmentally modeling real and imaginary parts of dielectric functions with Kramers-Kronig (K-K) consistency, comprising the steps of:

a) providing an imaginary part of a dielectric function over spectroscopic range, and dividing said spectroscopic range into a plurality of equal length ~~segements~~ segments;

b) fitting each and every said ~~segement~~ segment in said spectroscopic range with an approximating K-K consistent oscillator structure, said approximating oscillator structure in each said ~~segement~~ segment beginning and ending at the start and end of said ~~respective segement~~ to which it is fit, such that a summation of contributions from said oscillator structures present at each point within said spectroscopic range approximates said imaginary part of said dielectric ~~function,~~ and via Kramers-Kronig (K-K) consistency, also the real part of said ~~dielectric function~~.

2. (presently amended): A method as in Claim 1, in which the ~~segements~~ segments are of equal spectroscopic range lengths and at least one of said K-K consistent oscillator structures is triangular ~~shaped; the start and end of all oscillator structures, except the start of the first and end of the last, being positioned at the same spectroscopic point as are peaks of immediately adjacent oscillator structures~~.

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3. (presently amended): A method as in Claim 1, in which at ~~least~~ ~~one~~ ~~segement~~ ~~in~~ ~~said~~ ~~spectroscopic~~ ~~range~~ ~~is~~ ~~of~~ ~~a~~ ~~different~~ ~~length~~ ~~than~~ ~~other~~ ~~segements~~ ~~in~~ ~~said~~ ~~spectroscopic~~ ~~range~~ ~~and~~ ~~at~~ ~~least~~ ~~one~~ ~~of~~ ~~said~~ ~~K-K~~ ~~consistent~~ ~~oscillator~~ ~~structures~~ ~~is~~ ~~triangular~~ ~~shaped~~ <u>the segments are overlapping in that</u> the start and end of all oscillator structures, except the start of the first and end of the last, ~~being~~ <u>are</u> positioned at the same spectroscopic points as are peaks of immediately adjacent oscillator structures.

4. (presently amended): A method of segmentally modeling real and imaginary parts of dielectric functions with Kramers-Kronig (K-K) consistent oscillators, comprising the steps of:

practicing steps a and b ~~in-either-order~~<u>:</u>

a) providing experimentally obtained data for real and imaginary parts of a dielectric function vs. wavelength<u>, which characterize</u> ~~for~~ a sample comprising a transparent thin film on a substrate, over a determined range of wavelengths;

b) providing a mathematical model of said sample which comprises a parameter coresponding to the thickness of the transparent thin film and comprises parameters corresponding to a pole amplitude and location at a wavelength beyond the lower wavelength, high energy, extent of said determined range of wavelengths, then by a global fitting procedure evaluating parameters, including the thickness of the transparent thin film and the location and amplitude of the pole in said mathematical model, utilizing the data corresponding to the real part of the dielectric function;

with transparent thin film thickness evaluated in step b, proceeding to practice steps c, d and e sequentially:

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c) defining a wavelength range ~~segement~~ segment length and selecting an integer n such that the sum of [[(]]n + 0.5[[)]] wavelength range ~~segements~~ segments exactly span the determined wavelength range, and beginning at one end of said determined wavelength range placing a [[(]]K-K[[)]] consistent oscillator which comprises an amplitude parameter and begins and ends at the extents of the first ~~segement~~ segment with its peak midway therebetween, then performing a point by point fit to the imaginary part of the dielectric function data over wavelengths in said first wavelength range ~~segement~~ segment such that [[(]]K-K[[)]] consistent oscillator defining parameters are evaluated;

d) placing a second [[(]]K-K[[)]] consistent oscillator which begins at a wavelength at which the first [[(]]K-K[[)]] consistent oscillator peaks and ends one wavelength range ~~segement~~ segment length therefrom and has a peak midway therebetween, then performing a point by point fit to the imaginary part of the dielectric function data over said first and second wavelength range ~~segements~~ segments such that [[(]]K-K[[)]] consistent oscillator defining parameters in said first [[(]]K-K[[)]] consistent oscillator are re-evaluated and oscillator defining parameters in said second [[(]]K-K[[)]] consistent oscillator are evaluated;

for each of the remaining [[(]]n - 2[[)]] wavelength range ~~segements~~ segments, sequentially;

e) placing a [[(]]K-K[[)]] consistent oscillator which begins at a wavelength at which the just prior [[(]]K-K[[)]] consistent oscillator peaks and ends one wavelength range ~~segement~~ segment length therefrom and having a peak midway therebetween, then performing a point by point fit to the imaginary part of the

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dielectric function data over said wavelength range segements
segments which are fitted with [[(]]K-K[[)]] consistent
oscillators, such that oscillator defining parameters in
previously evaluated [[(]]K-K[[)]] consistent oscillators are
re-evaluated and oscillator defining parameters in the added
oscillator are evaluated[[;]], with the result being

such that at each wavelength over the determined range of
wavelengths the sum of the contributions of each evaluated
[[(]]K-K[[)]] consistent oscillator approximates the magnitude of
the imaginary part of the dielectric function.

5. (original): A method as in Claim 4, in which the pole
location and its amplitude at a wavelength beyond the lower
wavelength, high energy, extent of said determined range of
wavelengths, are fixed during steps c, d and e.

6. (original): A method as in Claim 4, in which both the data
real and imaginary parts the dielectric function data are fitted,
and the pole location and/or its amplitude are re-evaluated along
with previously evaluated oscillator defining parameters in
previously evaluated [[(]]K-K[[)]] consistent oscillators during
steps c, d and e, but wherein said pole location is required to
remain located at a wavelength beyond the lower wavelength, high
energy, extent of said determined range of wavelengths.

7. (original): A method as in Claim 4, in which at least one
[[(]]K-K[[)]] consistent oscillator is of tiangular shape.

8. (original): A method as in Claim 4, in which at least one
[[(]]K-K[[)]] consistent oscillator is constructed from at least
one polynomial on at least one side of the peak value thereof.

9. (original): A method as in Claim 4, in which at least one

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[[(]]K-K[[)]] consistent oscillator is of a shape selected from the group consisting of:

> Gaussian;
> Lorentzian;
> Harmonic;
> Ionic1;
> Ionic2; and
> TOLO.

10. (presently amended): A method as in Claim 4, which further comprises step f:

   f)   using starting values of parameters previously evaluated performing a global fitting procedure onto both real and imaginary parts of the dielectric function to re-evaluate parameters, including the thickness of the transparent thin film, the location and amplitude of the pole in said mathematical model, and the-"N"-{K-K} consistent oscillator defining parameters utilizing the data corresponding to the real and imaginary parts of the dielectric function, with a constraining limitation that said pole location is required to remain located at a wavelength beyond the lower wavelength, high energy, extent of said determined range of wavelengths.

11. (presently amended): A method as in Claim 10 in which, for each of the [["]]n[["]] the wavelength range segements segments, the segement segment length thereof is allowed to float and be fit along-with-other-{K-K}-consistent-oscillator-parameters, with required constraints being:

   that the sum of all the resulting [[(]]n + 1/2(n+1)[[)]] segement segment lengths remains equal to the length of the determined wavelength range, and

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that for the [[(]2nd - nth[[(]]] [[(]K-K[[(]]] consistent
oscillator each successive [[(]K-K[[(]]] consistent
oscillator begins at a wavelength at which the ~~just-prior~~
<u>immediately preceding</u> [[(]n - 1[[(]]] [[(]K-K[[(]]]
consistent oscillator peaks.

12. (original):   A method as in Claim 4, in which the global and
point by point fits are based on a square error minimization
criteria.

13. (original):   A method as in Claim 9, in which the global and
point by point fits are based on a square error minimization
criteria.

14. (original):   A method as in Claim 12, in which the global and
point by point fits are based on a square error minimization
criteria.

15. (presently amended):   A method of segmentally modeling real
and imaginary parts of dielectric functions with Kramers-Kronig
(K-K) consistent oscillators, comprising the steps of:

practicing steps a and b ~~in-either-order;~~<u>:</u>

   a) providing experimentally obtained data for real and
imaginary parts of a dielectric function vs. wavelength<u>, which
characterize</u> ~~for~~ a sample comprising a transparent thin film on a
substrate, over a determined range of wavelengths;

   b) providing a mathematical model of said sample which
comprises a parameter coresponding to the thickness of the
transparent thin film and comprises parameters corresponding to a
pole amplitude and location at a wavelength beyond the lower

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wavelength, high energy, extent of said determined range of wavelengths, then by a global fitting procedure evaluating parameters, including the thickness of the transparent thin film and the location and amplitude of the pole in said mathematical model, utilizing the data corresponding to the real part of the dielectric function;

with transparent thin film thickness evaluated in step b, proceeding to practice steps c, d and e sequentially:

c) defining n wavelength range ~~segement~~ segment lengths such that the sum of said n wavelength range ~~segements~~ segment lengths plus half the length of the last wavelength range ~~segement~~ segment at one end of said wavelength range exactly spans the determined wavelength range, and beginning at the opposite end of said determined wavelength range placing a [[()]K-K[()]] consistent oscillator which comprises an amplitude parameter and begins and ends at the extents of the first ~~segement~~ segment with its peak midway therebetween, then performing a point by point fit to the imaginary part of the dielectric function data over wavelengths in said first wavelength range ~~segement~~ segment such that [[()]K-K[()]] consistent oscillator defining parameters are evaluated;

d) placing a second [[()]K-K[()]] consistent oscillator which begins at a wavelength at which the first [[()]K-K[()]] consistent oscillator peaks and ends at the second wavelength range ~~segement~~ segment length therefrom and has a peak midway therebetween, then performing a point by point fit to the imaginary part of the dielectric function data over said first and second wavelength range ~~segements~~ segments such that [[(K-K]]) consistent oscillator defining parameters in said first [[()]K-K[()]] consistent oscillator are re-evaluated and

oscillator defining parameters in said second [[()]K-K[()]] consistent oscillator are evaluated;

for each of the remaining [[()]n - 2[()]] wavelength range segements segments, sequentially;

    e) placing a [[()]K-K[()]] consistent oscillator which begins at a wavelength at which the just-prior immediately preceeding [[()]K-K[()]] consistent oscillator peaks and ends at the nth wavelength range segement segment length therefrom and having a peak midway therebetween, then performing a point by point fit to the imaginary part of the dielectric function data over said wavelength range segements segments which are fitted with [[()]K-K[()]] consistent oscillators, such that oscillator defining parameters in previously evaluated [[()]K-K[()]] consistent oscillators are re-evaluated and oscillator defining parameters in the added oscillator are evaluated[[;]], with the result being

such that at each wavelength over the determined range of wavelengths the sum of the contributions of each evaluated [[()]K-K[()]] consistent oscillator approximates the magnitude of the imaginary part of the dielectric function.

16. (currently amended): A method as in Claim 15 in which the pole location and its amplitude at a wavelength beyond the lower-wavelength, high energy[[,]] extent of said determined range of wavelengths, are fixed during steps c, d and e.

17. (currently amended): A method as in Claim 15, in which both the data real and imaginary parts the dielectric function data are fitted, and the pole location and/or its amplitude are re-evaluated along with previously evaluated oscillator defining parameters in previously evaluated [[()]K-K[()]] consistent

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oscillators during steps c, d and e, but wherein said pole
location is required to remain located at a wavelength beyond
the-lower-wavelength, high energy, extent of said determined
range of wavelengths.

18. (original): A method as in Claim 15, in which at least one
[[( )]K-K[[ )]] consistent oscillator is of tiangular shape.

19. (original): A method as in Claim 15, in which at least one
[[( )]K-K[[ )]] consistent oscillator is constructed from at least
one polynomial on at least one side of the peak value thereof.

20. (original): A method as in Claim 15, in which at least one
[[( )]K-K[[ )]] consistent oscillator is of a shape selected from
the group consisting of:

        Gaussian;
        Lorentzian;
        Harmonic;
        Ionic1;
        Ionic2; and
        TOLO.

21. (presently amended):   A method as in Claim 15 which further
comprises step f:

  f) using starting values of parameters previously evaluated
performing a global fitting procedure onto both real and
imaginary parts of the dielectric function to re-evaluate
parameters, including the thickness of the transparent thin film,
the location and amplitude of the pole in said mathematical
model, and the-"N"-{K-K} consistent oscillator defining
parameters utilizing the data corresponding to the real and

imaginary parts of the dielectric function, with a constraining limitation that said pole location is required to remain located at a wavelength beyond the lower wavelength, high energy, extent of said determined range of wavelengths.

22. (presently amended):   A method as in Claim 19 in which, for each of the [["]]n[["]] the wavelength range ~~segements~~ segments, the ~~segement~~ segment length thereof is allowed to float and be fit along with other [[(]]K-K[[)]] consistent oscillator parameters, with required constraints being:

~~that the sum of all the resulting lengths plus half the last one remain equal to the length of the determined wavelength range, and~~

that the sum of all the resulting n + 1/2(n+1) segment lengths remains equal to the length of the determined wavelength range, and

that for the [[(]]2nd - nth[[)]] [[(]]K-K[[)]] consistent oscillator each successive [[(]]K-K[[)]] consistent oscillator begins at a wavelength at which the ~~just prior~~ immediately preceeding [[(]]n - 1[[)]] [[(]]K-K[[)]] consistent oscillator peaks.

23. (original): A method as in Claim 15, in which the global and point by point fits are based on a square error minimization criteria.

24. (original): A method as in Claim 21, in which the global and point by point fits are based on a square error minimization criteria.

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25. (original): A method as in Claim 22 in which the global and point by point fits are based on a square error minimization criteria.

[[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]][[*]]
[[*]][[*]][[*]][[*]][[*]][[*]]

26. (presently amended): A method of segmentally modeling real and imaginary parts of dielectric functions with Kramers-Kronig (K-K) consistent oscillators, comprising the steps of:

practicing steps a and b in-either-order,:

  a) providing experimentally obtained data for real and imaginary parts of a dielectric function vs. wavelength, which characterize for a sample comprising a transparent thin film on a substrate, over a determined range of wavelengths;

  b) providing a mathematical model of said sample which comprises a parameter coresponding to the thickness of the transparent thin film and comprises parameters corresponding to a pole amplitude and location at a wavelength beyond the lower wavelength, high energy, extent of said determined range of wavelengths, then by a fitting procedure evaluating parameters, including the thickness-of-the transparent thin film thickness and the location and amplitude of the pole in said mathematical model, utilizing the data corresponding to the real part of the dielectric function;

with transparent thin film thickness evaluated in step b, proceeding to practice steps c, d and e sequentially:

  c) defining a wavelength range segement segment length and

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<u>selecting an integer n</u> such that the sum of [[(]]n[[)]]
wavelength range ~~segements~~ <u>segments</u> exactly span the determined
wavelength range, and beginning centrally in said determined
wavelength range placing a first [[(]]K-K[[)]] consistent
oscillator which comprises an amplitude parameter and begins and
ends at the extents of the first ~~segement~~ <u>segment</u> with its peak
midway therebetween;

for each of the remaining [[(]]n - 1[[)]] wavelength range
~~segements~~ <u>segments,</u> on ether side of the central peak of the
first [[(]]K-K[[)]] consistent oscillator;

   d)   placing a [[(]]K-K[[)]] consistent oscillator which begins
at a wavelength at which the just centrally prior [[(]]K-K[[)]]
consistent oscillator peaks and ends one wavelength range
~~segement~~ <u>segment</u> length therefrom and having a peak midway
therebetween;

   e)   performing a fit to the imaginary part of the dielectric
function data over said wavelength range ~~segements~~ <u>segments</u> which
are fitted with [[(]]K-K[[)]] consistent oscillators, such that
oscillator defining parameters in the [[(]]K-K[[)]] consistent
oscillators are evaluated;

such that at each wavelength over the determined range of
wavelengths the sum of the contributions of each evaluated
[[(]]K-K[[)]] consistent oscillator approximates the magnitude of
the imaginary part of the dielectric function.

27. (presently amended):   A method as in Claim 26 in which the
pole location and its amplitude at a wavelength beyond the ~~lower-wavelength,~~-high energy,- extent of said determined range of
wavelengths, are fixed during step e.

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28. (presently amended): A method as in Claim 26, in which both the real and imaginary parts the dielectric function data are fitted, and the pole location and/or its amplitude are re-evaluated along with previously evaluated oscillator defining parameters in the   [[(]]K-K[[)]] consistent oscillators during step e, but wherein said pole location is required to remain located at a wavelength beyond the ~~lower-wavelength,~~ high energy, extent of said determined range of wavelengths.

29. (original): A method as in Claim 26, in which at least one [[(]]K-K[[)]] consistent oscillators is of tiangular shape.

30. (original): A method as in Claim 26, in which at least one [[(]]K-K[[)]] consistent oscillator is constructed from at least one polynomial on at least one side of the peak value thereof.

31. (original): A method as in Claim 26, in which at least one [[(]]K-K[[)]] consistent oscillator is of a shape selected from the group consisting of:

> Gaussian;
> Lorentzian;
> Harmonic;
> Ionic1;
> Ionic2; and
> TOLO.

32. (presently amended): A method of segmentally modeling real and imaginary parts of dielectric functions with Kramers-Kronig (K-K) consistent oscillators, comprising the steps of:

practicing steps a and b ~~in-either-order,~~:

a) providing experimentally obtained data for real and

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imaginary parts of a dielectric function vs. wavelength, which characterize for a sample comprising a transparent thin film on a substrate, over a determined range of wavelengths;

b) providing a mathematical model of said sample which comprises a parameter coresponding to the thickness of the transparent thin film and comprises parameters corresponding to a pole amplitude and location at a wavelength beyond the lower wavelength, high energy, extent of said determined range of wavelengths, then by a fitting procedure evaluating parameters, including the thickness of the transparent thin film and the location and amplitude of the pole in said mathematical model, utilizing the data corresponding to the real part of the dielectric function;

with transparent thin film thickness evaluated in step b, proceeding to practice steps c, d and e sequentially:

c) defining [[(]]n[[)]] wavelength range segement segment lengths such that the sum of said [[(]]n[[)]] wavelength range segements segments exactly span the determined wavelength range, and beginning centrally in said determined wavelength range placing a first [[(]]K-K[[)]] consistent oscillator which comprises an amplitude parameter and begins and ends at the extents of the first segement segment with its peak midway therebetween;

for each of the remaining [[(]]n - 1[[)]] wavelength range segements segments, distributed about both sides on-ether-side-of the central peak of the first [[(]]K-K[[)]] consistent oscillator;

d) placing a [[(]]K-K[[)]] consistent oscillator which begins at a wavelength at which the just centrally prior [[(]]K-K[[)]]

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consistent oscillator peaks and ends one wavelength range
segement segment length therefrom and having a peak midway
therebetween;

e) performing a fit to the imaginary part of the dielectric
function data over said wavelength range segements segments which
are fitted with [[(]]K-K[[)]] consistent oscillators, such that
oscillator defining parameters in the [[(]]K-K[[)]] consistent
oscillators are evaluated[[;]], with the result being

sueh that at each wavelength over the determined range of
wavelengths the sum of the contributions of each evaluated
[[(]]K-K[[)]] consistent oscillator approximates the magnitude of
the imaginary part of the dielectric function.

33. (presently amended): A method as in Claim 32 in which the
pole location and its amplitude at a wavelength beyond the lower-
wavelength, high energy, extent of said determined range of
wavelengths, are fixed during step e.

34. (presently amended): A method as in Claim 32, in which both
the real and imaginary parts the dielectric function data are
fitted, and the pole location and/or its amplitude are
re-evaluated along with previously evaluated oscillator defining
parameters in the [[(]]K-K[[)]] consistent oscillators during
step e, but wherein said pole location is required to remain
located at a wavelength beyond the lower-wavelength, high energy,
extent of said determined range of wavelengths.

35. (original): A method as in Claim 32, in which at least one
[[(]]K-K[[)]] consistent oscillators is of tiangular shape.

36. (original): A method as in Claim 32, in which at least one
[[(]]K-K[[)]] consistent oscillator is constructed from at least

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one polynomial on at least one side of the peak value thereof.

37. (original): A method as in Claim 32, in which at least one [[(]K-K[[)]] consistent oscillator is of a shape selected from the group consisting of:

> Gaussian;
> Lorentzian;
> Harmonic;
> Ionic1;
> Ionic2; and
> TOLO.

38. (original): A method as in Claim 26, in which the fits are based on a square error minimization criteria.

39. (original): A method as in Claim 32, in which the fits are based on a square error minimization criteria.

40. (original): A method as in Claim 26, in which [[(]n = 1[[)]] and the enabling criteria for practicing step d is not met.

41. (original): A method as in Claim 32, in which [[(]n = 1[[)]] and the enabling criteria for practicing step d is not met.